



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.                | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|-----------------------|---------------------|------------------|
| 10/631,944                     | 07/31/2003  | Corey Howard Metcalfe | 029260.006          | 1750             |
| 25461                          | 7590        | 04/07/2006            | EXAMINER            |                  |
| SMITH, GAMBRELL & RUSSELL, LLP |             |                       | KIM, ANDREW         |                  |
| 1230 PEACHTREE STREET, N.E.    |             |                       | ART UNIT            | PAPER NUMBER     |
| SUITE 3100, PROMENADE II       |             |                       |                     |                  |
| ATLANTA, GA 30309-3592         |             |                       | 3712                |                  |

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/631,944             | METCALFE ET AL.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Andrew Kim             | 3712                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 20 March 2006.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-3,5-8 and 14-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-3,5-8 and 14-22 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 31 July 2003 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.  
\_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

This office action is in response to the amendment filed on 3/20/06 in which:  
Applicant's request for reconsideration of the finality of the rejection of the last  
Office action is persuasive and, therefore, the finality of that action is withdrawn.

- Claim 20 has been amended.
- Response to claims rejection have been filed.
- Claims 1-3, 5-8, and 14-22 are pending.

### ***Allowable Subject Matter***

The indicated allowability of claims 1-3, 5-8, and 14-16 is withdrawn in view of  
the newly discovered reference(s) to Edelman (US 4,770,153). Rejections based on the  
newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code 103 not included in this action  
can be found in a prior Office action.

**Claims 1-3, 5-8, and 14-22 are rejected under 35 U.S.C. 103(a) as being  
unpatentable over Schumann (US 6,146,141) in view of Edelman (US 4,770,153).**

Schumann discloses a simulated pistol wherein a compressed air cylinder (bolt  
and piston assembly) causes the pistol carriage to recoil as recited in claims 1, 14, 17,

and 21 (see Abstract). The compressed air is stored in the magazine which can be detached from the housing as recited in claims 1, 14, 17, 21 and 22 (col. 2, line 50).

Edelman discloses a pneumatic weapon that utilizes a pneumatically operated bolt assembly which is coupled to an electronic control system as cited in claims 1, 14, 17, and 21 (col.1, lines 9-12). Edelman further discloses that the pneumatic gun can be designed to simulate the operation of an automatic firearm (Abstract).

Regarding claims 1 and 17, Schumann discloses an isolated weapon simulator having a bolt providing recoil for a user comprising:

- A housing including a piston chamber and a piston (fig. 1, item 30) in the chamber wherein the piston connect to the bolt (fig. 1, item 33);
- A regulated gas supply (fig. 1, item 17) detachably attached to the housing;
- A valve chamber (fig. 1, item 25) in said housing, said valve chamber connected with said regulated gas supply and the bolt;

Schumann discloses the claimed invention with the exception of

- A recoil valve positioned in said valve chamber, said recoil valve positioned to control the release of gas from said regulated gas supply to said piston chamber;
- A pilot valve connected to said regulated gas supply; and
- A pilot channel connecting said pilot valve to said valve chamber, wherein said pilot valve transmits gas to said distal end of said recoil valve from said gas supply to shift said recoil valve in said valve chamber.

Instead, Schumann discloses a changeover valve (fig. 1, item 24) located in the valve block (fig. 1, item 25) which connects the compressed air chamber (fig. 1, item 29) to

the compressed-air magazine. In an analogous pneumatic bolt assembly weapon apparatus reference, Edelman discloses a recoil valve (firing valve, fig. 12, item 130 and fig. 4, item 16) which controls the release of gas from regulated gas supply to the piston chamber (bolt assembly, fig. 12, item 50). Edelman further discloses a pilot valve (fig. 12, item 134a) connected to regulated gas supply as well as a pilot channel (fig. 13, item 147 or fig. 4, item 24) to said pilot valve to said valve chamber, wherein said pilot valve transmits gas to said distal end (fig. 13) of said recoil valve from said gas supply to shift said recoil valve in said valve chamber.

One of ordinary skill would have seen the benefit of using Edelman's pneumatic/electrical weapon assembly because Edelman's invention provides a high pressure firing valve (recoil valve) for controlling the delivery of high pressure air to the pneumatic bolt so as to provide a high rate of fire at the same time that the muzzle velocity of projectiles discharged (bolt/piston action) by the weapon is increased (col. 2, lines 60-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schumann with the recoil and pilot valve as taught by Edelman to provide a high rate of fire and velocity of the bolt.

Regarding claim 2, Schumann as modified by Edelman discloses a recoil cylinder port (valve stem, Edelman, fig. 13, item 158) connecting said piston chamber with said valve chamber; wherein said recoil valve controls the release of gas through said recoil cylinder port into said piston chamber to move said piston.

Regarding claims 3, Schumann as modified by Edelman discloses

- A spring (Edelman, fig. 4, item 23) positioned in said valve chamber (Edelman, fig. 4, item 16);
- Wherein said recoil valve includes a proximal end and a distal end; and
- Wherein said spring applies a force to said proximal end of said recoil valve in said valve chamber.

Regarding claim 5, Schumann as modified by Edelman discloses at least two valve gates (valve gaskets – Edelman, fig. 4, items 15c and 15b); and a central valve cavity (Edelman, fig. 4, item 21c) between said at least two valve gates.

Regarding claim 6, Schumann as modified by Edelman discloses

- A first gate (Edelman, fig. 13, item 142), second gate (Edelman, fig. 13, item 180), third gate (Edelman, fig. 13, item 182);
- A distal valve cavity (Edelman, fig. 13, item 144) defined between said first gate and second gate;
- Wherein said central valve cavity (Edelman, fig. 13, item 146) is defined between said second gate and said third gate.

Regarding claim 7, Schumann as modified by Edelman discloses

- A gas supply channel (Edelman, fig. 13, item 186) through said housing connecting said gas supply with said valve chamber;
- Wherein said pilot valve (Edelman, fig. 13, item 134a) conveys gas to said distal end of said recoil valve to displace said recoil valve (Edelman, fig. 13, item 162) in said valve chamber;

- Wherein said central valve cavity (Edelman, fig. 13, item 146) is in communication with said supply channel and said recoil cylinder port (Edelman, fig. 13, item 174) to allow gas to engage said piston in said piston chamber.

Regarding claim 8, Schumann as modified by Edelman discloses an exhaust port (Edelman, fig. 13, item 172) traversing said housing from said valve chamber.

Regarding claims 14, 21 and 22, claims 14, 21 and 22 are rejected for the reasons set forth hereinabove for claim 1 and therefore the Office maintains the same line of reasoning. Schumann as modified by Edelman discloses

- Providing a piston (Schumann, fig. 1, item 30) slidably mounted in a piston chamber (Schumann, fig. 1, item 28) in the firearm housing;
- Attaching a regulated gas supply (Schumann, fig. 1, item 17 and the related description thereof) to the firearm housing, said gas supply distributing compressed gas;
- Providing a recoil valve (Edelman, fig. 13) in a valve chamber having a distal end and a proximal end, said distal end of said valve chamber connected to a pilot valve (Edelman, fig. 13, item 134a) and said proximal end of said valve chamber connected to said gas supply (Edelman, fig. 13);
- Conveying gas using said pilot valve to said distal end of said valve chamber (Edelman, fig. 13);
- Displacing said recoil valve (Edelman, fig. 13, item 162) in said valve chamber; and

- Forcing gas from said gas supply through said recoil valve into said piston chamber to generate recoil (col. 2, lines 20-33).

Regarding claim 15, Schumann as modified by Edelman discloses biasing said proximal end of said recoil valve in said valve chamber with a spring (Edelman, fig. 13).

Regarding claim 16, Schumann as modified by Edelman discloses forcing gas from said gas supply into a central valve cavity of said recoil valve; and dispersing said gas from said central cavity into a recoil cylinder port connected with said distal end of said valve chamber to overcome the biasing force of said spring (col. 11, lines 5-32).

Regarding claim 17, using the same line of reasoning as claim 1, Schumann as modified by Edelman discloses the claimed invention with the exception of an electrically-controlled valve connected between said recoil valve and said gas supply, wherein said electrically-controlled valve conveys gas to said recoil valve to displace said recoil valve in said valve chamber. Instead, Schumann discloses a pneumatic/electric converter is provided at the changeover valve instead of the contact, which, when the valve tappet is actuated, delivers an electric signal to the electronics control system to generate a laser impulse through the laser 1 (Schumann, col. 4, lines 41-48) and an electronics system (fig. 1, item 13). In an analogous pneumatic bolt assembly weapon apparatus reference, Edelman discloses on col. 8, lines 29-44 that the pneumatic mechanism may be fired under the control of a solid state adjustable pulse circuit to fire in modes such as semi-automatic, burst fire, and automatic fire.

One of ordinary skill would see the benefit of modifying Schumann with a pneumatic mechanism that may be fired under the control of a solid state adjustable

pulse circuit to vary the rate of fire using the electronic circuitry that controls the weapon (col. 8, lines 29-44). Changing the rate of fire is important in a weapon because different situations call for different rates of fire. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Schumann reference with an electrically controlled valve as taught by the Edelman reference to provide the user different rates of fire.

Regarding claim 18, Schumann as modified by Edelman discloses at least two valve gates (Edelman, fig. 13, items 180 and 182) and a central valve cavity (Edelman, fig. 13, item 146) between the at least two gates.

Regarding claim 19, Schumann as modified by Edelman discloses

- A first gate (Edelman, fig. 13, item 142), second gate (Edelman, fig. 13, item 180), third gate (Edelman, fig. 13, item 182);
- A distal valve cavity (Edelman, fig. 13, item 144) defined between said first gate and second gate;
- Wherein said central valve cavity (Edelman, fig. 13, item 146) is defined between said second gate and said third gate.

Regarding claim 20, Schumann as modified by Edelman discloses the electrically controlled valve is a pilot valve (Edelman, figs. 1, and 11-12, item 32)

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Kim whose telephone number is 571-272-1691. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Jones can be reached on 571-272-4438. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.K. 3/31/2006

*JOHN M. HOTALING, II*  
*PRIMARY EXAMINER*